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RECENT LITERATURE.

Pycraft on the Osteology of the Impennes.¹—Mr. Pycraft's second 'Contribution to the Osteology of Birds' treats the Penguins in the same thorough manner that his previous paper dealt with the Steganopodes. We have a detailed account of the skeleton, including that of the young, and this is followed by keys to the genera and species based on characters furnished by various portions of the adult skeleton. It is gratifying to have one more group of birds whose genera are based on osteological characters, also gratifying to see Ratitæ and Carinatae put in quotation marks.

Like Mr. Grant in the British Museum Catalogue, Mr. Pycraft admits six genera in this compact group of birds and these, as indicated by the diagram, have, with the exception of *Eudyptula*, which has lagged a little, become pretty evenly differentiated from the supposed ancestral form. To use an hibernicism, Mr. Pycraft gives us his conclusions at the beginning, where he states that, while the fore limb represents the high-water mark of skeletal specialization, the skull and other portions of the skeleton being much less specialized, the Penguins do not furnish us with any facts of great importance or carry us beyond the confines of the class. The distinctness of the metatarsals, a feature approached by *Fregata*, is alluded to and it is considered that they represent a halfway stage between the primitive, completely separate metatarsals on the one hand, and the highly-specialized cannon bone on the other, where the three metatarsals are all merged to form a single shaft.

It is pointed out that the Penguins are not plantigrade, but is Mr. Pycraft quite correct in saying that the legs are comparatively little used for the support of the body? — F. A. L.

Montgomery on the Food of Owls.—In the 'American Naturalist' for July, 1899,² Mr. Montgomery gives the results of his observations on the feeding habits of two species of Owls, — the Short-eared Owl (*Asio accipitrinus*) and the Long-eared Owl (*A. wilsonianus*), the locality being the vicinity of West Chester, Pa. His observations are novel in being based not upon the stomachs of Owls killed, but upon their 'food pellets' collected from the ground beneath their roosting trees. Four Long-

¹Contributions to the Osteology of Birds. Part II. Impennes. By W. P. Pycraft. Proc. Zool. Soc., London, Dec. 13, 1898.

²Observations on Owls, with particular regard to their Feeding Habits. By Thomas H. Montgomery, Jr. Am. Nat., Vol. XXXIII, July, 1899, pp. 563-572.

eared Owls were under observation from Dec. 25, 1898, to Feb. 22, 1899, and one Short-eared Owl from Feb. 26 to March 26, 1899. The pellets were gathered regularly once each week, not only from beneath their roosting trees but from beneath the trees that served as their casual feeding perches, the number of Owls frequenting these roosting and perching trees being also noted daily. The results are given in tabular form, showing the number and species of Owls under observation each day, the number of pellets gathered at each collection, the contents of the pellets, and the daily food average, which, consisting almost wholly of small mammals, varied from 1.57 to 2.16 for each Owl daily. A summary of the contents of the food pellets found under the roosting tree of the Long-eared Owls is thus stated: "2 birds, 1 *Blarina*, 2 *Peromyscus leucopus*, 1 *Mus musculus*, 6 *Microtus pinetorum*, 319 *M. pennsylvanicus*, and 18 undetermined individuals of *Microtus*." The contents of the pellets gathered under the other roosting tree, occupied by the Short-eared Owl, and occasionally by one of the Long-eared Owls, is thus summarized: "1 *Cambarus* [crayfish], 5 birds, 2 *Blarina parva*, 1 *Zapus hudsonius*, and 105 *Microtus pennsylvanicus*." Pellets were gathered from under a number of other trees, all within the radius of an eighth of a mile, which served as feeding perches, which are thought to have been all, or nearly all, produced by these same Owls. "These pellets contained the remains of 5 small birds (including *Regulus*, *Junco*, *Certhia*), 3 *Blarina brevicauda*, 3 *B. parva*, 1 *Blarina* undetermined, 2 *Zapus hudsonius*, 3 *Peromyscus leucopus*, 1 *Microtus pinetorum*, 139 *M. pennsylvanicus*, and 4 undetermined individuals of *Microtus*." Thus these five Owls, in the space of about one month, destroyed 12 small birds, 10 shrews, and 600 field mice, of which the greater part were the common meadow vole or 'meadow mouse.' The examination of food pellets gathered at other localities gave similar results, except that the remains of no birds were found.

Mr. Montgomery concludes his very interesting and valuable paper as follows: "In conclusion, it may be noted that these data add further support to the well-proven results of ornithologists, that our local Owls (with the possible exception of the Great Horned Owl) are of the greatest benefit to the agriculturist. Our three commonest local Owls, the Screech, Long-eared, and Short-eared (as well as the rarer Acadian and Barn Owl), are indefatigable destroyers of mice and insects. But since this is the case, and since the group of the Owls is one of great interest to the naturalist, it is to be hoped that future students of their dietary habits will avoid studying their stomachs for this purpose, and in order not to destroy them examine their food pellets instead."—J. A. A.

Lantz's 'Review of Kansas Ornithology.'¹—This very carefully pre-

¹A Review of Kansas Ornithology. By D. E. Lantz, Manhattan, Kan. Read before the Academy Oct. 28, 1897. Trans. Kansas Academy of Science, 1896-1897, pp. 224-276. July, 1899.